

Materials Sciences Division Safety Committee Meeting

The Chemla Room (67-3111)
The Molecular Foundry
Lawrence Berkeley National Laboratory

August 30, 2006



Materials Sciences Division

Opening Remarks



Materials Sciences Division

- ◆ Mark Alper, Deputy Division Director, Materials Sciences Division

Agenda



Materials Sciences Division

- ◆ MSD Safety Committee
 - ◆ Membership
 - Introduction of new personnel
 - Review of research group membership
 - Pending staff changes
 - ◆ Discussion: Function of the MSD Safety Committee
 - Roles
 - Policies
- ◆ Review of recent editions of *Materials Safety*
- ◆ Retrospective Review
 - ◆ Review of accidents, injuries, illnesses
 - ◆ Waste issues
 - ◆ Lab safety coordinators
- ◆ Looking Forward
 - ◆ MSD Assessments
 - Self Assessment
 - Recommended schedule for recurring EH&S activities
 - Integrated Functional Appraisal
 - MESH
 - External ISM review
 - ◆ Review of ISM
 - ◆ Discussion, comment

Administrative Issues

MSD Safety Committee

Membership

Roles

MSD Safety Committee

Membership and Liaisons



Materials Sciences Division

Chair and Deputy Chair:

Rick Kelly, Joel Ager

Building Managers:

Gilbert Torres (62, 66, 67), Doug Owen (72),
TBD (2)

MSD EHS Administrative Support:

Tennessee Gock

Electrical Safety Expert:

Jim Severns (MSD)

MSD EH&S Technician:

Paul Johnson

Liaisons:

EH&S Liaison to MSD:

John Seabury (EHS)

Waste Generator Assistant Liaison:

Howard Hansen (EHS)

Representative

Ilan Gur
Edith Bourret-Courchesne
Ingrid Cotoros
Ron Tackaberry
Marca Doeff
Oscar Dubon
Norman Mannella
Jeff Beeman
Peggy Hou
Daniel Garcia
Z. Liliental-Weber
Bruce Cohen
Elena Shevchenko
Bruce Harteneck
Yi Liu
Jeff Neaton
James Bustillo
Doreen Ah Tye
Matthew Langner
Rong Yuan
Virginia Altoe
Robert Schoenlein
Roger York
Eduardo Saiz
Andrei Istratov

Group

Alivisatos
Bourret-Courchesne
Chemla
CXRO
DeJonghe/Visco
Dubon
Fadley
Haller/EMAT
Hou
Lanzara
Liliental-Weber
Molecular Foundry/Bertozzi
Molecular Foundry/Alivisatos
Molecular Foundry/Bokor
Molecular Foundry/Fretchet/Svec
Molecular Foundry/Louie
Molecular Foundry
NCEM
Orenstein
Ritchie
Salmeron/Molecular Foundry
Shank
Somorjai
Tomsia
Weber

Each LBNL-based research group in MSD, including each program in the Molecular Foundry, will designate a primary and backup representative to serve on the Safety Committee

Functions and Key Activities of the MSD Safety Committee



Materials Sciences Division

- ◆ Functions of safety committee and representatives
 - ◆ Represent all research groups within MSD
 - ◆ Stimulate leadership and staff participation in safety program
 - ◆ Advise Division management and EH&S on safety and health matters
 - ◆ Perform essential monitoring, educational, investigative and evaluative tasks
 - ◆ Serve as contact point for EH&S matters in each research group
 - ◆ Serve as conduit for bringing EH&S information back to research groups
- ◆ Key Activities
 - ◆ Recommend changes to existing safety rules or the development of new rules
 - ◆ Recommend improvements in hazard identification and control measures
 - ◆ Report and discuss unsafe conditions
 - ◆ Review accidents, incidents and close calls in MSD and generate “Lessons Learned” for use in the Division
 - ◆ Disseminate EH&S information at group or lab meetings
 - ◆ Document inspections, investigations, meetings and other EH&S actions at the group level

A Retrospective Look at EH&S Issues in MSD Over the Prior Three Months

Materials Safety and LBNL Lessons Learned



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Materials Safety

- ◆ Management of Safety in Shared Laboratories (August)
- ◆ Safe Handling of Sharps Waste (June)

Communicate the policy for shared labs and disposal of sharps to all people in your group

Injuries and Incidents



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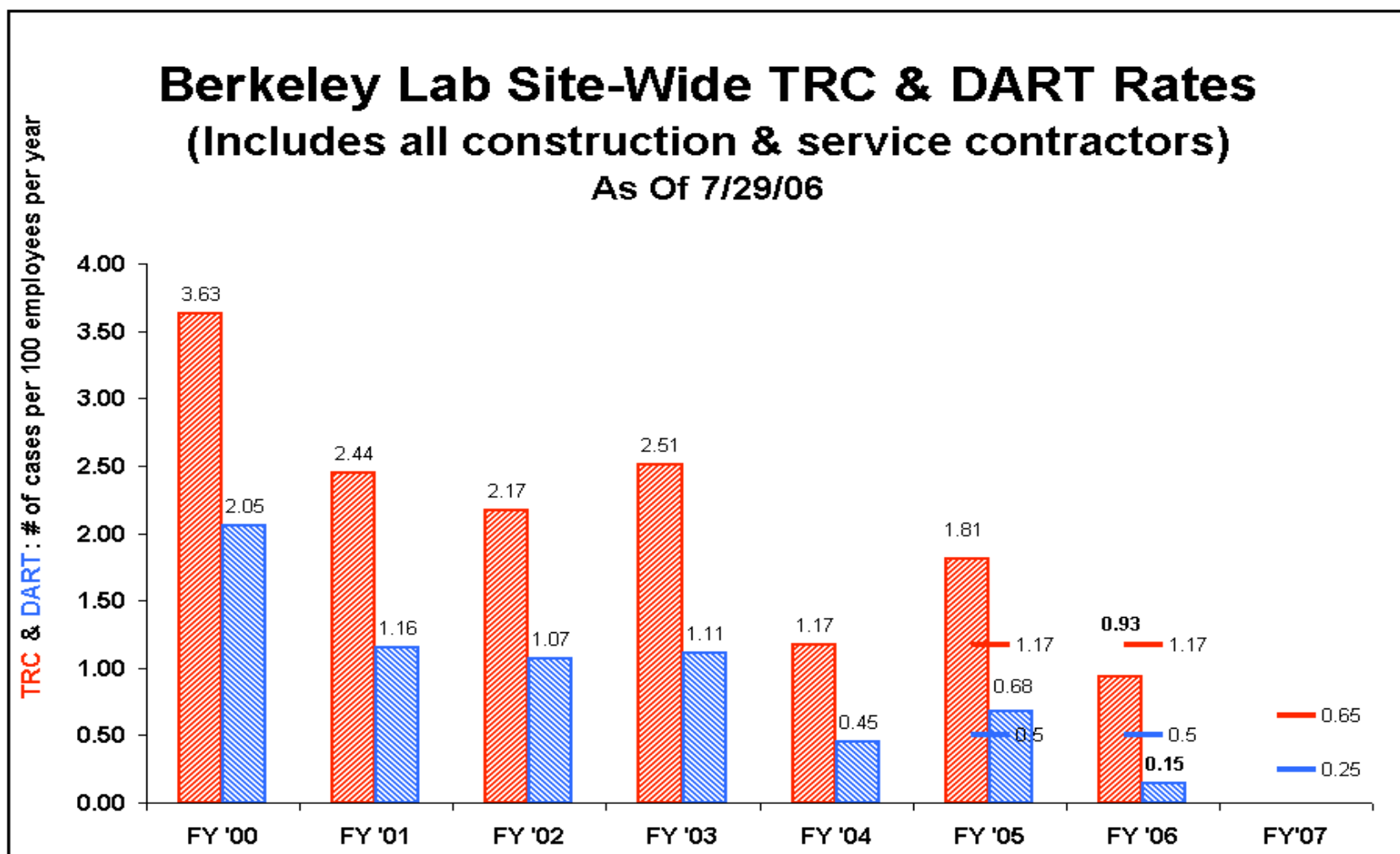
◆ Chemical Splash (Not reportable)

- ◆ Student spilled solvent / nanoparticles on lab coat, with some skin contact
- ◆ No injury

Injuries and Incidents Lab-Wide



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Waste Identification Deficiencies



Materials Sciences Division

- ◆ Waste exception reports: 0
- ◆ Notices of violation for waste: 0

Good job on identifying your chemicals waste materials!

SAA Inspections & Management



Materials Sciences Division

- ◆ In the May OCA inspection, many SAAs were not following required practices, resulting in a failing grade for the Division in the Self Assessment:
 - ◆ 2-236 (Dubon): Labeling errors
 - ◆ 2-434 (CXRO): Waste can not properly labeled
 - ◆ 62-101 (Shop): Waste no properly labeled
 - ◆ 62-142 (Wu/Hou): Waste bottle not labeled
 - ◆ 62-338 (Tomsia): No SAA sign
 - ◆ 66-225 (Somorjai): Waste not labeled
 - ◆ 66-301 (Bertozzi): Unlabeled waste
 - ◆ 66-310 (Alivisatos): Unlabeled waste
 - ◆ 66-331 (Meagley): Unlabeled waste
 - ◆ 66-426 (Somorjai): Unlabeled waste
 - ◆ 66-430 (Somorjai): Unlabeled waste

SAA Inspections & Management



Materials Sciences Division

- ◆ The Division office will consider levying fines against research groups that do not maintain their SAAs as required by LBNL policy.
- ◆ Requirements for running an SAA:
 - ◆ Label each container
 - ◆ Completely fill out each label
 - ◆ Date each label
 - ◆ Place and update the SAA sign as needed
 - ◆ Store only waste in the SAA
 - ◆ Use secondary containment
 - ◆ Dispose of containers that have been in use for 6 months or more
 - ◆ Segregate solvents, halogenated solvents, acids, bases and other incompatible materials
 - ◆ Assign an SAA manager and backup manager
 - ◆ Replace departed SAA managers

Lab Safety Coordinators



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- ◆ Each PI was asked if they felt it was necessary to assign safety responsibilities to students and staff in their labs
- ◆ **“Yes”**
 - ◆ Ager
 - ◆ Anderson
 - ◆ Attwood
 - ◆ Bokor
 - ◆ Dahmen
 - ◆ Dejonghe
 - ◆ Fadley
 - ◆ Meagley
 - ◆ Orenstein
 - ◆ Somorjai
 - ◆ Svec
 - ◆ Tomsia
- ◆ **“No”**
 - ◆ Bourret-Courchesne
 - ◆ Cohen
 - ◆ Fischer
 - ◆ Goldberg
 - ◆ Gullikson
 - ◆ Kandl
 - ◆ Lilienthal-Weber
 - ◆ Schoenlein
 - ◆ Zuckerman

Looking Forward at the EH&S Program in MSD

The 2006 MSD EH&S Assessments

Self Assessment – Complete
Laser Review and Reauthorization –In process
Integrated Functional Appraisal – In process
Management ES&H Review – Sept 5-8
External ISM Review Consultant – Sept. 15-26

LBNL Self Assessment Summary



Materials Sciences Division

Self Assessment Criteria Review Summary

#	Topic	Rating
1	Clear lines of communication within the Division for EH&S	Green
2	Environmental reviews as part of work planning	Green
3	Inspection of workspaces	Green
4	Review of work activities and inventory of hazards	Yellow
5	Maintenance and testing of engineering controls	Green
6	Implementation of administrative controls (Formal authorizations)	Yellow
7	Ergonomics	Yellow
8	Chemical inventory	Yellow
9	Correction of findings from OSHA inspections	Green
10	Laser safety	Green
11	Control of chemical, radiological and biological hazards during moves	Green
12	Peroxide forming chemicals are controlled	Green
13a	SAA management	Red
13b	Authorization compliance	Yellow
13c	Environmental violations	Green
13d	Waste QA samples	Green
13e	Notices of Non-compliance for waste	Green
14	Training	Green
15	Student Safety	Green
16	Tracking and management of EH&S Findings	Green
17	Completion of findings from prior self assessment, IFA, MESH	Green
18	Injury and near miss reporting and investigation	Green



Recommended Schedule for Recurring EH&S Activities



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Activity	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Dispose of all waste in all SAAs*	X							X				
Review chemical inventory		X						X				
Review EH&S Assignments in lab**		X							X			
Inspect lab spaces			X			X				X		
Inspect SAAs	X			X			X				X	
Evaluate training of staff/students					X							X
Resubmit JHA for everyone					X							
Review and update AHDs on line						X						
Schedule safety meeting with staff	X			X			X			X		

* To avoid overloading EH&S, it is recommended that waste disposal proceed on the following schedule:

- 1 abs in building 2 follow the schedule shown on the table (January and August)
- 1 abs in building 66 should delay the schedule by one month (February and September)
- 1 abs in buildings 67 and 72 should delay the schedule by 2 months (March and October)
- 1 abs in building 62 delay the schedule by 3 months (April and November)

**Assignments might include: 1) Division Safety Committee Member, 2) SAA Manager, 3) EH&S Coordinator

Laser Review and Reauthorization



Materials Sciences Division

- ◆ Review of each laser operation by LSO and Rick Kelly
 - ◆ Meets commitment EH&S made to DOE to inspect each laser
 - This element is largely complete
 - ◆ Review by Rick Kelly prior to approving on-line AHD
 - Still in progress, must be complete by October 31, 2006

Ensure your on-line laser AHD is complete and accurate

Ensure that you have fully implemented the AHD

Some Issues from the Laser Review



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- ◆ Student operating 3b laser without protective eyewear
- ◆ Use of laser curtain that can be burned by laser
- ◆ Not all students had baseline laser eye medical review
- ◆ Incomplete training
- ◆ Regulated lasers not in laser inventory

Integrated Functional Appraisal (IFA)



Materials Sciences Division

- ◆ The 2006 IFA is under way to assess AHD compliance
- ◆ Each operation is reviewed by EH&S and Rick Kelly
 - ◆ Rick recommends scheduling a preliminary “unofficial” review
- ◆ Each lab with a *non-laser* formal authorization will be reviewed
 - ◆ AHD–8
 - ◆ RWA–2
 - ◆ XA–3
 - ◆ SSA–1
 - ◆ LAS–2
 - ◆ Human Subjects review–2
 - ◆ Biological use authorizations–0

Review your authorization and fully implement the safety requirements.

Some Issues Detected in Preliminary Screening



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- ◆ Ventilation interlock had been disconnected on H₂ system
- ◆ Storage of much more alkali metal than permitted in AHD
- ◆ AHD included work procedures that had been eliminated several years before
- ◆ Use of reactive gas that was not authorized in AHD
- ◆ Electrical safety interlocks not being tested as per AHD

Some of these can be corrected prior to the “official” IFA review

MESH Review

- ◆ MESH = Management of Environment, Safety and Health
- ◆ Conducted by SRC, OCA and EH&S—Paul Blodgett is lead
- ◆ Kicks off September 5—meeting with Paul Alivisatos, Mark Alper and Rick Kelly
- ◆ Reviewers will visit labs to talk to PIs, staff and students
 - ◆ May set up appointments or may just show up in the lab
- ◆ Emphasis areas
 - ◆ Understanding of the ISM process

Ensure that everyone in the lab can explain the basic tenants of ISM

External ISM Review

- ◆ September 15-26 external review
- ◆ Conducted by consultant McCallum-Turner under contract with LBNL
 - ◆ Goal is to emulate a DOE review by the “Office of Independent Oversight and Performance Assurance”
- ◆ Stated Goal: Determine overall effectiveness of ISMS
- ◆ Interview PIs, students and staff; inspect labs; review training

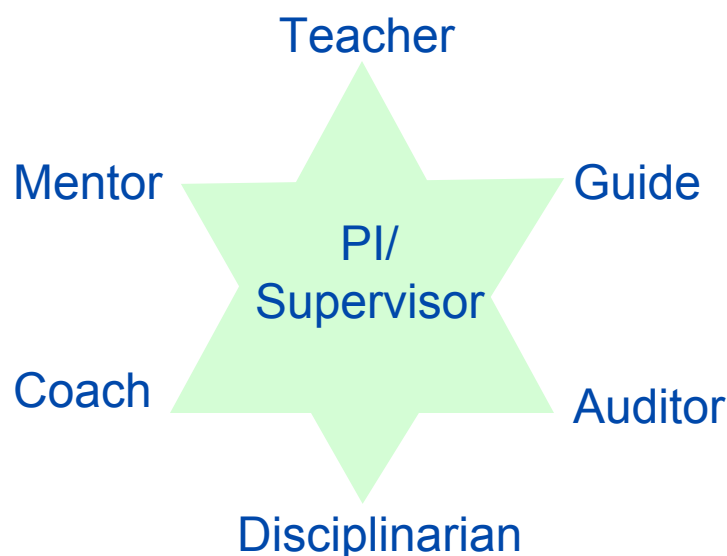
External ISM Review

- ◆ Main questions they will pursue:
 - ◆ Is safety adequately considered during the planning for new work
 - ◆ Is it clear how new work is authorized and by whom
 - ◆ Are researchers aware of the thresholds for formal authorization
 - ◆ Are controls in work authorization documents fully implemented
 - ◆ Does everyone understand their roles and responsibilities pertaining to EH&S
 - ◆ Is formal EH&S Training complete; is OJT complete and documented
- ◆ **Presentation by John Seabury**

Safety Accountability--The PI is Key



Materials Sciences Division



"The PI is the best person to inculcate a safety mindset..."

They mentor, coach guide, teach check and audit laboratory conditions and practices and even discipline those who disregard safety rules and put themselves and their colleagues at risk."

*Dr. Peck Thian Guan
Director ES&H
Singapore National University*

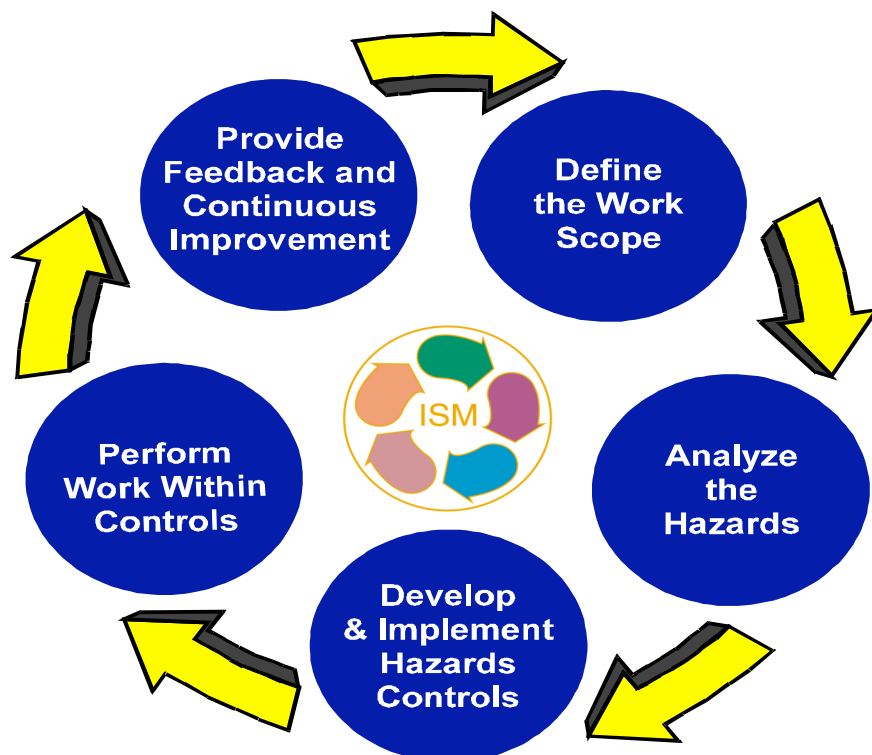
Integrated Safety Management (ISM)



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ISM Process

Line management authority and accountability for EH&S



Goal of The ISM Program

Safety is fully integrated with other research activities and is considered at each step in planning and execution of work

Guiding Principles of ISM



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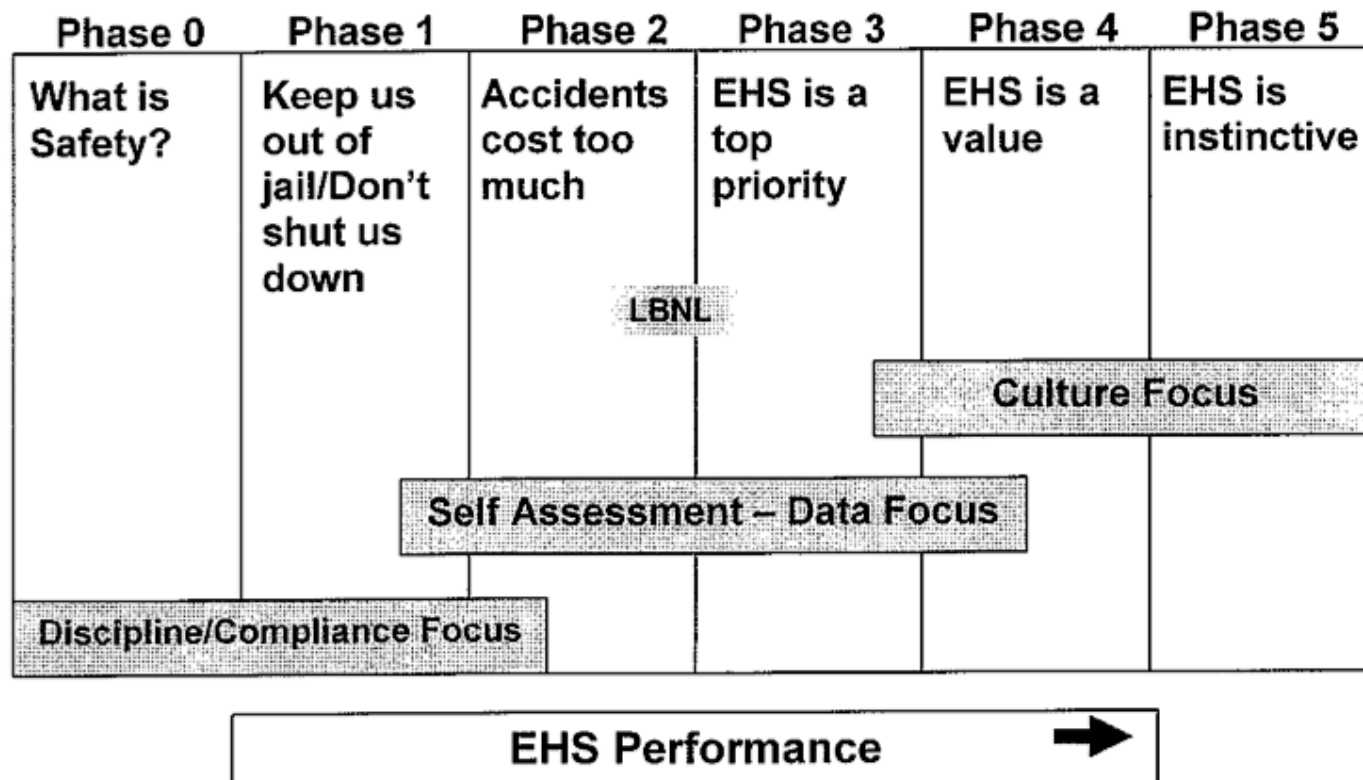
- 1. Line management is responsible for ES&H**
- 2. Clear roles and responsibilities**
- 3. Training consistent with responsibilities**
- 4. Balanced priorities: safety and research**
- 5. Identification of ES&H standards**
- 6. Establishment of hazard controls**
- 7. Appropriate authorization of work**

Toward Safety Excellence



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PHASES OF SAFETY EXCELLENCE



Discussion



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- ◆ Areas of concern
- ◆ Feedback
- ◆ Training issues
- ◆ Questions
- ◆ Next meeting: TBD